

Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1.-16. (Cancelled)

17. (Currently amended) A method of drug delivery, the method comprising steps of:
introducing into an animal's body (i) a polymerizable material (prepolymer), wherein the polymerizable material includes unsaturated ~~functional groups~~ carbon-carbon bonds,
(ii) a thermal polymerization initiator selected from the group consisting of 2,2'-azobis-[N,N'-dimethyleneisobutyramidine] dihydrochloride and derivatives of 2,2'-azobis-[N,N'-dimethyleneisobutyramidine] dihydrochloride, and
(iii) a diagnostic, therapeutic, or prophylactic agent; and
applying thermal energy transdermally for a sufficient amount of time to polymerize or crosslink the said prepolymer, or allowing the pre-polymer to polymerize or crosslink using only the animal's own body heat as a thermal energy source.

18. (Original) The method of claim 17 wherein the step of providing an agent comprises providing a bioactive agent.

19. (Original) The method of claim 17 wherein the step of providing an agent comprises providing a protein.

20. (Original) The method of claim 17 wherein the step of providing an agent comprises providing a peptide.
21. (Original) The method of claim 17 wherein the step of providing an agent comprises providing a vaccine.
22. (Original) The method of claim 17 wherein the step of providing an agent comprises providing a polynucleotide.
23. (Original) The method of claim 17 wherein the step of providing an agent comprises providing an organic compound.
24. (Original) The method of claim 17 wherein the step of providing an agent comprises providing an agent within a microsphere.
- 25.-49. (Canceled)
50. (Previously presented) The method of claim 17 wherein the polymerizable material is biodegradable before and after polymerization.
51. (Currently amended) The method of claim 17 wherein the polymerizable material has unsaturated functional groups selected from the group consisting of double bonds and triple bonds ~~alkenes, alkynes, carbonyls, imines, nitriles, cyano, cyanates, iso-cyanates, iso-cyano,~~

~~amides, esters, ketones, aldehydes, ureas, carbonates, carbamates, carboxylic acids, phenyl, aryl, and heteroaryl.~~

52. (Previously presented) The method of claim 17 wherein the polymerizable material has functional groups selected from the group consisting of acryl, methacryl, allyl, and vinyl.

53. (Previously presented) The method of claim 17 wherein the polymerizable material is a hydrogel.

54. (Previously presented) The method of claim 17 wherein the polymerizable material and thermal initiator are covalently linked together.

55. (Previously presented) The method of claim 17 wherein the step of introducing comprises introducing the material and initiator under the skin, into a muscle, into a body cavity, into a potential space, or into an organ.

56. (Previously presented) The method of claim 17 wherein the thermal polymerization initiator initiates polymerization between 37°C and 45°C.

57. (Previously presented) The method of claim 17 wherein the thermal polymerization initiator is water soluble.

58. (Previously presented) The method of claim 17 wherein the thermal polymerization initiator has no toxicity in animals.
59. (Previously presented) The method of claim 17 wherein the step of introducing comprises injecting said prepolymer and said initiator using a syringe.
60. (Previously presented) The method of claim 17 wherein the step of introducing comprises placing said prepolymer and said initiator during a surgical procedure.
61. (Previously presented) The method of claim 17 wherein the step of applying thermal energy comprises applying thermal energy from a heat source selected from the group consisting of a heating pad, a water bath, a hot water bottle, a heat lamp, and a light.
62. (Previously presented) The method of claim 17, wherein the polymerizable material (prepolymer) is selected from the group consisting of acrylates, diacrylates, oligoacrylates, methacrylates, dimethacrylates, and oligomethacrylates.
63. (Previously presented) The method of claim 17, wherein the polymerizable material (prepolymer) is an acrylate.
64. (New) The method of claim 17, wherein the thermal polymerization initiator initiates polymerization between 37°C and 50°C.